



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/521,992

09/27/2005

Horst Zeiser

18513

1755

272 7590 11/28/2008
SCULLY, SCOTT, MURPHY & PRESSER, P.C.
400 GARDEN CITY PLAZA
SUITE 300
GARDEN CITY, NY 11530

EXAMINER

KASTURE, DNYANESH G

ART UNIT

PAPER NUMBER

3746

MAIL DATE

DELIVERY MODE

11/28/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/521,992	Applicant(s) ZEISER, HORST	
	Examiner DNYANESH KASTURE	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The previously made objections to the specification are hereby withdrawn in view of amendments to the specification submitted on November 6, 2008.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Despite amendments, Claims 1-9 are still rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention for the following new reasons.

4. In Re claim 1, "...the advancing pressure wave in the working line (27) at the moment at which the second end (34) of the pressure compensation line (33) is at a maximum..." is indefinite because it is not clear what characteristic (pressure ?) of the advancing pressure wave is at its maximum. Further, "the second end" is a fixed point so, how can it be at "a maximum" ? Further, "at the moment" refers to a point in time and it is not clear how it relates to the second end, since the second end is a fixed point in space. Also note a minor typographic error "eth".

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Baars et al (US Patent 5,762,479 A) and as extrinsically evidenced by Burdisso et al (US Patent 6,112,514 A) and Purdy (US Patent 6,364,055 B1)

FIG. 7

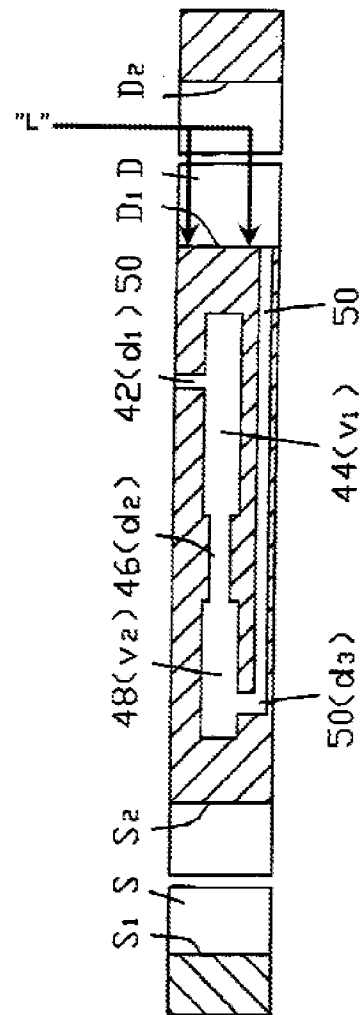
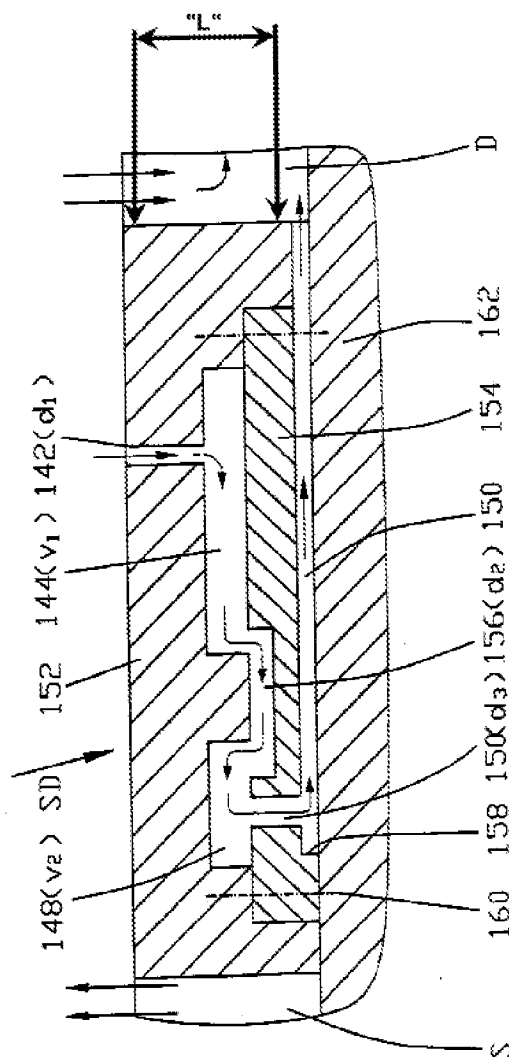


FIG. 6

Art Unit: 3746

7. In Re claim 1, with reference to Figures 6 and 7 depicted above, Perstnev et al discloses a Piston machine (Abstract: “..hydraulic axial pump/motor..”) comprising:

- a rotatably mounted cylindrical drum (26), disposed in which is a plurality of cylindrical bores (C1, C2), which are distributed over the circumference and in which displaceable pistons (P1, P2) are disposed, wherein the cylindrical bores at one side have cylindrical openings, which in accordance with the angle of rotation of the cylindrical drum are temporarily in communication in each case with one of two kidney-shaped control ports (S, D), which are connected in each case to a working line (“L”, 14, 16), wherein between the kidney-shaped control ports in each case a switchover region (SD, DS) is formed and wherein;
- a first end (42 or 142) of a pressure compensation line (50 or 150) opens out at least into one switchover region (SD), characterized in that a second end (see end of line 50 or 150 depicted above) of the pressure compensation line opens into the outlet-side working line (D1, D2, 16, “L”, also Column 1, Lines 32-37 state: “A tortuous passage of a non-uniform cross-section is formed in the bridging portion, allowing the by-passing of the fluid first in a direction towards the downstream side of the suction port and then towards and into the upstream side of the discharge port”)

- the claim references the “outlet-side working line” and not a working line that is EXTERNAL to the port plate. Therefore the passage within the port plate denoted by “L” reads on the “outlet-side working line” and the kidney-shaped OPENING reads on the “outlet side kidney shaped control port”

Art Unit: 3746

- with regards to dimensioning the length “L”, one having ordinary skill in the art would recognize that to achieve the maximum pulsation dampening effect, the magnitude of the pulsation at the second end needs to be at a maximum when the rotating cylinder makes available an opposing pressure at the first end (at the instant the cylindrical opening makes contact with the first end).

8. However, Perstnev et al does not disclose that the line, with a first end originating at the switchover region, terminates OUTSIDE of the port plate, EXTERNAL to the housing on a working line on the outlet-side.

9. Nevertheless, with reference to Figures 3 and 4, Baars et al discloses a compressor with an outlet-side working line (9) that is external to the discharge chamber (8) and a pressure compensation line (10) which terminates OUTSIDE of the port plate, EXTERNAL to the housing on a working line on the outlet-side at (12). Column 3, Lines 30-35 state: “...a modified phase, preferably with an inverted phase, which cancels said pressure signal at a determined specific frequency, which is the main frequency of the pulsation. The component of the signal with inverted phase is obtained from the pressure signal itself existing in the discharge tube or discharge system”. The dimensioning of the lengths is also discussed in Column 3, Line 65 – Column 4, Line 2: “The determination of the length of the discharge tube or tubes involved is a function of the frequency of the signal to be canceled: higher frequencies i.e., shorter wavelengths require reducing the length of the tubes” and in Column 3, Lines 55-58: “...providing the discharge side of the compressor with at least one discharge auxiliary tube 10, whose length differs from the length of the discharge tube 9 by a fraction of the wave length..”.

Art Unit: 3746

10. The teachings of Baars et al utilize an air medium which is compressible however, the pulsation dampening concept also applies to hydraulic systems as extrinsically evidenced by Purdy who first reiterates the pulsation dampening concept of Baars et al in Column 1, Lines 29-33: " Such arrangements have two relatively open exhaust flow paths through which a total exhaust stream is divided. In these arrangements the acoustical lengths of the concentric or other pipes are selected to be 180 degrees out of phase at their termination, to cancel the unwanted frequency ". In addition, Column 2, Lines 18-19 state: "Yet another object of my invention is to eliminate destructive resonance in hydraulic system pipes" thereby suggesting that noise cancellation in air compression systems is analogous to pulsation dampening of hydraulic systems. The Herschel and Quincke tubes discussed in Baars et al are discussed in more detail in Burdisso et al.

11. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the "tortuous" path of Perstnev et al so the second end terminates OUTSIDE of the port plate, EXTERNAL to the housing on a working line on the outlet-side as taught by Baars et al to save the cost of machining a tortuous path inside the port plate.

Art Unit: 3746

12. Claims 2 - 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Baars et al (US Patent 5,762,479 A) as applied to claim 1 and as further extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US 20020098093 A1)

13. In Re claim 2, Perstnev et al and Baars et al as applied to claim 1 discloses all the claimed limitations except for the length "L" is $\frac{1}{4} \lambda$ plus multiples of λ .

14. Nevertheless, it has been held that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

15. Therefore one of ordinary skill will be capable of making the length $\frac{1}{4} \lambda$ or multiples thereof as a suitable design choice for distance from the kidney where the second end of the pressure compensation line is connected. In addition, Meier discloses evidence in Column 2, Lines 18-30 that the length of the sound channel is a quarter of the wavelength of the sound oscillation as a suitable design choice, further reference is also made to the Quincke tube. Also, Tomell discloses evidence in Paragraph [0027] and [0029] that distance between connecting elements of a discharge line is equal to an odd multiple of one quarter of the wave length, which means that $\frac{5}{4} \lambda$, $\frac{9}{4} \lambda$, $\frac{13}{4} \lambda$ are all suggested, which further translates to $\lambda + \frac{1}{4} \lambda$, $2 \lambda + \frac{1}{4} \lambda$, $3 \lambda + \frac{1}{4} \lambda$ and so on also being suggested, so, to summarize: multiples of λ plus $\frac{1}{4} \lambda$ is suggested.

16. In Re claim 3, Perstnev et al and Baars et al as applied to claim 1 discloses all the claimed limitations except for the length "L" is $\frac{3}{4} \lambda$ plus multiples of λ .

Art Unit: 3746

17. Nevertheless, it has been held that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

18. Therefore one of ordinary skill will be capable of making the length $\frac{3}{4} \lambda$ or multiples thereof as a suitable design choice for distance from the kidney where the second end of the pressure compensation line is connected. In addition, Tomell discloses evidence in Paragraph [0027] and [0029] that distance between connecting elements of a discharge line is equal to an odd multiple of one quarter of the wave length, which means that $\frac{3}{4} \lambda$, $\frac{7}{4} \lambda$, $\frac{11}{4} \lambda$ are all suggested, which further translates to $\lambda + \frac{3}{4} \lambda$, $2 \lambda + \frac{3}{4} \lambda$ and so on as being suggested, so, to summarize: $\frac{3}{4} \lambda$ plus multiples of λ are suggested.

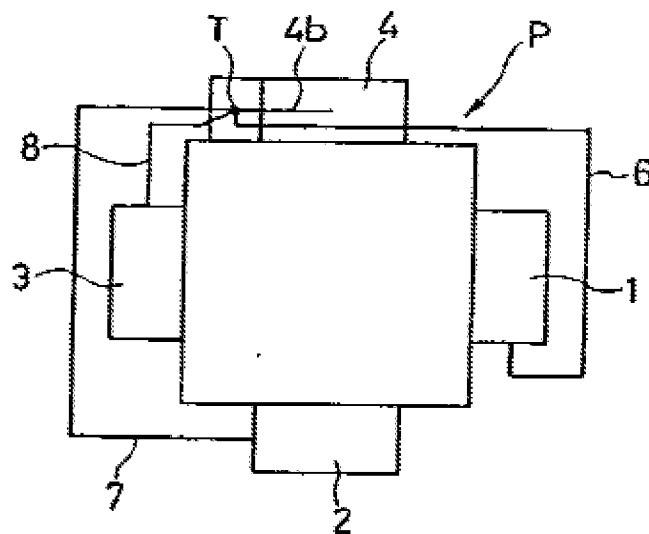
19. In Re claims 4 and 5, one skilled in the art would recognize that the angular span between successive piston/cylinder bodies (40 degrees since there are 9 pistons) would incorporate one peak of the pressure wave since each piston stroke has one maximum compression per cycle (the cycle corresponding to one complete revolution of the swash plate). It would only involve routine skill to recognize that if $L = \frac{1}{4} \lambda$ (Claim 4) or $\frac{3}{4} \lambda$ (Claim 5) then the quotients of the angles as claimed would always have the same corresponding value at the time when peak pressure is exposed to the second end of the pressure compensation line. Note again that discovering the optimum value of result effective variable involves only routine skill in the art – MPEP 2144.05 (II-B).

Art Unit: 3746

20. In Re claim 6, Perstnev et al, Baars et al, Meier and Tomell et al as applied to claims 1 – 5 discloses all the claimed limitations including the length of the pressure compensation line is an integral multiple of the wavelength of the pressure wave. Baars et al discloses a pressure compensation line (10) has a length corresponding to a fraction, or multiple, of the wavelength of a frequency of a gas pulsation signal at the gas chamber discharge outlet (Abstract).

21. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Baars et al (US Patent 5,762,479 A) and as extrinsically evidenced by Meier (US Patent 4,362,223 A) and Tomell et al (PG Pub US 20020098093 A1) as applied to claims 1 – 5 and further in view of Nishikawa et al (PG Pub US 20030026710 A1 – Divisional of Application No. 09/917,248 filed 07/27/2001)

Fig. 7



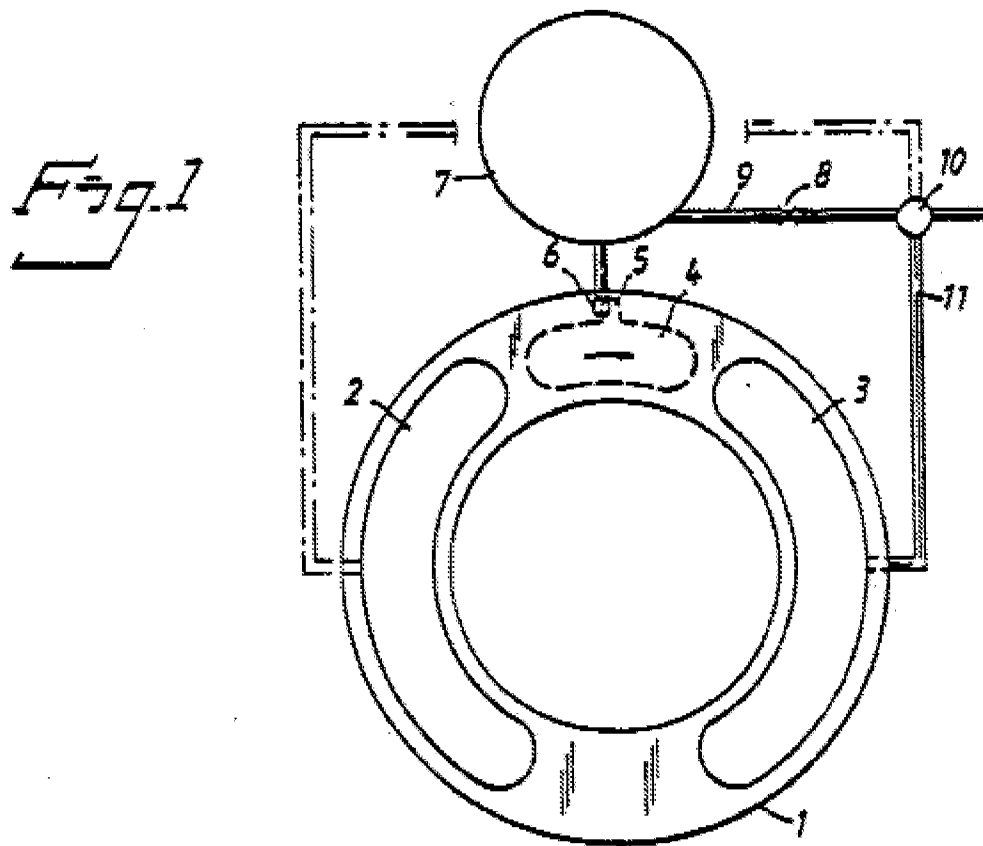
Art Unit: 3746

22. In Re claim 7, Perstnev et al, Baars et al, Meier and Tomell et al as applied to claims 1 – 5 discloses all the claimed limitations except for the phase displacement to be taken into account by correcting the length "L"

23. Nevertheless, with reference to Figure 7, Nishikawa et al discloses four different tubes with different lengths depending on the phase difference between the gases being transmitted by them so that they arrive opposed to each other Paragraph – [0052].

24. It would have been obvious to a person having ordinary skill in the art at the time of the invention to correct the length of passage of Perstnev et al in accordance with the phase of the gas being transmitted by it as taught by Nishikawa et al so that vibration or noise of the compressor can be excellently decreased as stated by Nishikawa et al in Paragraph [0055]

25. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perstnev et al (US Patent 6,024,541 A) in view of Baars et al (US Patent 5,762,479 A) and further in view of Bratt et al (German Patent DE 4,229,544 A 1)



26. In Re claims 8 and 9, Perstnev et al and Baars et al as applied to claim 1 discloses all the claimed limitations except for the pressure accumulator element and throttling point in the pressure compensation line as set forth in the claim.

27. Nevertheless, Bratt et al discloses a pressure compensation lines (9) and (11) between an auxiliary port (6) and high pressure side, with a pressure accumulator (7) and a throttling point (8).

28. It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the passage of Perstnev et al modified by Baars et al so it has an accumulator and throttle point in the pressure compensation line as taught by Bratt

Art Unit: 3746

et al for the purpose of achieving more effective damping of flow pulsations as stated by Bratt et al (in the Summary of the Invention section).

Response to Arguments

29. Applicant has argued on Page 8 of the response that the examiner confirms the novelty of Claim 1 in Paragraph [0013] wherein the examiner confirms that the passage (42) of Perstnev et al does not terminate at a point along the working line.

30. Examiner's response: The following was stated in Paragraph [0013] of the office action: "Perstnev et al as discussed earlier discloses all the claimed limitations except for an EXTERNAL line with a first end originating at the switchover region and terminating at a point on the working line". This statement does NOT state that the passage 42 does not terminate along the working line. This statement clearly uses the word "EXTERNAL" which is not set forth in the claim. The examiner contends that Perstnev et al DOES disclose a first end originating at the switchover region and terminating at a point on the working line as discussed in the rejection of claim 1 however, the pressure compensation line and the working line along with both ends are INTERNAL to the port plate. Since claim 1 does not state that the connection is made OUTSIDE of the port plate, EXTERNAL to the housing on a working line, Perstnev et al DOES read on claim 1, therefore claim 1 is not novel. Note that Baars et al provides

Art Unit: 3746

additional supplementary evidence that backs up the teachings of the working line and pressure compensation line of Perstnev et al.

31. Applicant has argued on Page 9 of the response that one skilled in the art would not combine the teachings of Perstnev et al and Burdisso et al because the latter utilizes an air medium and the former utilizes an incompressible hydraulic fluid.

32. Examiner's Response: Purdy as discussed in the rejection of claim 1 provides evidence that noise cancellation in air systems is analogous art to pressure pulsation dampening of hydraulic systems.

33. Applicant has argued that the second pipe (12) possessing length L2 cannot on one hand be a switchover region and on the other hand an outlet side working line in accordance with the structure and function thereof.

34. Examiner's Response: Since Claim 1 is an apparatus claim, different sections of the tube can be given different nomenclatures. Accordingly, the entrance to A2 is the region referred to as the switchover region, and the region around the other joint and beyond is being referred to as the working line. Note that Burdisso et al is only being referenced as extrinsic evidence to demonstrate the concept of Herschel-Quincke tubes.

35. All of applicant's arguments have been carefully considered however they are not persuasive for the reasons above. The examiner therefore respectfully disagrees with

Art Unit: 3746

applicant's arguments and maintains that this application is not in condition for allowance.

Conclusion

36. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DNYANESH KASTURE whose telephone number is (571)270-3928. The examiner can normally be reached on Mon-Fri, 9:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571) 272 - 7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

DGK